

AN EMPIRICAL STUDY CONCERNING THE USE OF INTERNET BANKING IN ROMANIA

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Abstract: As the trend of ICT (Information and Communication Technology) development is gaining larger influence over countries' development and growth, Internet banking plays an important role in enhancing the growth of several developed and developing economies over the 21th century. Internet banking and other electronic payment systems are relatively new in Romania and is expected to result in a more efficient banking system. However, in this study we try to argue the fact that Internet banking is strategically important to the banking sectors in an emerging economy, such as Romania, by means of statistical-econometric methodology. For this I used statistical data from Eurostat and MSI for the period 2009-2013. I proposed two models to highlight the existence of a relationship between the variables. The results of the first model have pointed out the fact that the rise of number of Internet users leads to an increase of the number of Internet banking users. The results of the second model show how the indicators influence Internet Banking users and the number of transactions made by Internet Banking influences the value of transactions made by Internet Banking.

Keywords: Internet users, Internet banking, regression models, Romania.

JEL classification: C18, G21, L86

1. Introduction and literature review

As the trend of ICT (Information and Communication Technology) development is gaining larger influence over countries' development and growth, Internet banking plays an important role in enhancing the growth of several developed and developing economies over the 21th century.

Developments in information technology and the subsequent evolution of Internet banking have fundamentally changed the ways in which banks implement their business and consumers conduct their everyday banking activities (Eriksson et al., 2008; Sayar and Wolfe, 2007).

Many financial institutions have answered to the competitive business environment by implementing e-business as part of their business strategies. With the growth of the Internet, it is inevitable for banks to move towards providing online banking for their customers (Salari and Salajegheh, 2011). Although the current branch based retail banking remains the most common method for conducting banking transactions, Internet technologies has changed the way personal financial services are designed and delivered to customers (Wang et al., 2003).

Banks started to realize distribution as an alternative strategy for differentiation and further gaining competitive advantage (Thornton and White, 2001).

According to Saeidipour et al. (2013) the core of banks new strategic orientation currently consists of developing new alternative distribution channels. In Olteanu's opinion, the mobile phone, PC and Internet are regarded as an option that was taken into consideration (Olteanu, 2000). Despite of the development of alternative distribution channels, the branch is still the main contact source and it will continue to play an important role for many banks (Cetină and Odobescu, 2007). Its role will change by emphasizing the

personal banking services and letting the customers to make more routine transactions by means of electronic distribution channels.

There are massive opportunities that the Internet has brought to the banking industry in recent years including the rise of online banks (Alnsour and Al-Hyari, 2011).

According to Ozuru et al. (2010) the importance of electronic payment system in any country can never be over emphasized, due to the dramatic transformation in technological advancements that is being experienced by the global financial industry. Karjaluoto et al. (2002) showed that previous experience with computers and technologies and attitudes toward computers influence attitudes toward Internet banking, and also actual behaviors.

Many studies, focused on identifying the factors that may influence or affect the adoption of Internet banking, highlighted by the technology acceptance model (TAM) (Al-Somali et al., 2008; Safeena et al., 2010; Alnsour and Al-Hyari, 2011). It is important to take these factors into account when studying customer attitudes towards Internet banking, because many financial services organizations are rushing to become more customer focused. Among these factors we can mention the perceived usefulness, perceived ease of use, trust, compatibility, self-efficacy, technical resources, security, cost and time, consumer awareness, perceived risk, frequency of use.

2. The use of Internet banking

2.1 Internet banking: definitions and background

Internet banking was defined as “the provision of retail and small value banking products and services through electronic channels. Such products and services can include deposit-taking, lending, account management, the provision of financial advice, electronic bill payment, and the provision of other electronic payment products and services such as electronic money.” (Basel Committee Report on Banking Supervision, 1998; Al-Somali et al., 2008)

The terms “PC banking”, “online banking”, “Internet banking” and “mobile banking” refer to a number of ways in which customers can access their banks without having to be physically present at a bank branch and permits the customer to conduct transactions from any terminal with access to the Internet (Deutsche Bundesbank Monthly Report December 2000).

Internet banking refers to the use of the Internet as a remote delivery channel for banking services. Such services include traditional ones, such as opening a deposit account or transferring funds among different accounts, and new banking services, such as electronic bill presentment and payment (allowing customers to receive and pay bills on a bank's Website) (Furst et al., 2000).

Attractiveness to Internet banking is enhanced by the ability to conduct a wide range of banking transactions electronically via the bank's web site - anytime and anywhere, faster and with lower fees compared to using traditional, real-world bank branches (Sonja and Rita, 2008). Internet banking allows for direct access to financial information and to undertake financial transactions with no need to go to the bank (Rotchanakitumnuai and Speece, 2003). Banking is no longer bound to time or geography. Customers are enjoying relatively easy access to their accounts 24/7. Internet banking is beneficial and advantageous for banks and their clients. The primary advantages to banks include cost savings, time savings, achieving new segments of the society, effectiveness, improvement of the bank's status and better customer service and client satisfaction (Goudarzi et al., 2013).

Moreover Internet banking offers an outstanding opportunity for selling banking services and products which increase banks competitive positions and fulfill customer's demands and provide new distribution channels and help to improve the business image and minimize cost (Currie, 2000; Lam and Burton, 2005).

Internet banking (IB) is the latest and most innovative service offered by the banks and has become the self-service delivery channel that allows banks to provide information and offer

services to their customers with more convenience via the web services technology (Safeena et al., 2010).

Internet banking is comprehensive and have a strong influence by changes in such technology, deregulation of many parts of finance, the appearance of new banking institutions, economic reformation, the environmental changing motivate banking industry to reestablish the banking structure which is more profitable and reducing expenditure cost and implement good command of control (You, et. al., 2007).

To summarize, Internet banking offers many benefits to both service providers and their customers.

2.2. The use of Internet banking in Romania

The increasing rate of Internet penetration has brought significant changes in the Romanian banking sector. Bank service providers have been constantly adapting to these changes and they complied with the consumers' demands with new services.

According to Roşu (2011) the development of E-banking in Romania depends on the following factors: strategic factors (new products and services, appropriate promotion, business integration, integrating different channels, expanding existing markets, building trust, costs), operational factors (good customer services, simplifying and integrating basic services, more convenient than the competitors, understanding customer purchase behavior) and technical factors (systems security, user-friendly web interface, personalization and customization capabilities, upgrading existing infrastructure).

Internet banking and other electronic payment systems are relatively new in Romania and it is expected to result in a more efficient banking system. The rapid development of Internet banking (IB) may make life easier in some ways, however, it must be remembered that the usage of the Internet is still in its infancy in some places in Romania as Enăchescu and Zaharia noticed in their research (2013). According to them, although Romania has made great strides in achieving technological parameters and taking economic and legislative measures for the development of the information society, it has a long way to recover.

As Kovacs (2014) stated in his research, the most common and preferred type of electronic banking in Romania is banking through the Internet, called Internet banking. The dates show both a tendency of increasing the number of Internet banking, but also an increase of the number of transaction in LEI by electronic banking services between 2009-2013. Further on we calculated the Population Index, Internet users Index, Internet Banking users Index to highlight the increase / decrease of the indicator against the previous year, as shown in Table 1.

Table 1: The dynamics of the population, Internet and Internet Banking users in Romania and its influence factors

Year	Population Index	Internet users Index	Internet Banking users Index	Average number of transactions (in LEI) made by Internet Banking Index	Average value of transactions (in LEI) made by Internet Banking Index
2009	100	100	100	100	100
2010	99.29	112.35	271.66	208.16	299.58
2011	99.53	106.47	143.23	134.43	192.88
2012	99.49	112.47	91.64	113.86	97.51
2013	99.62	111.12	120.05	121.31	119.53

Source: Eurostat and www.mcsi.ro data processed by the author

Even though the number of population is decreasing, the number of those who used the Internet and Internet Banking is increasing. The most spectacular growth can be noticed in

Internet Banking users, average number of transactions (in LEI) made by Internet Banking and average value of transactions (in LEI) analyzed by Internet Banking indicators studied in 2010 against the previous year. A setback can be noticed in 2012 both for the Internet Banking users and the average value of transactions (in LEI) analyzed by Internet Banking indicators even though the indicators of Internet users and Average number of transactions (in LEI) made by Internet Banking had an increasing trend.

Due to the Regulation of the Romanian National Bank concerning the transactions made through the instruments of electronic payment and the relations between the participants to these transactions, the payment instrument with distance access is the one that allowed the owner to have access to the funds existing in his/her bank account and through it having the opportunity to make payments to a beneficiary or other type of operations of funds transfer (Buhociu et al., 2009). According to the authors, in Romania, even if the banks have implemented different systems of electronic bank services, the clearing part still suffer, as long as it does not have an electronically system base.

In Romania, 28 out of the 30 commercial banks and 7 out of the 9 subsidiaries of the foreign credit institutions implemented and offer now Internet banking services. The continuous development of the supporting technology, information security and e-banking strategy are reflected on the increasing number of the Internet banking customers.

3. Research Methodology

We used in this study statistical data according to Eurostat for Romania and MSI (Ministry for Information Society) for the period 2009-2013 and the average of these indicators, respectively:

- Internet users - whether they use it from home, work or from anywhere else and whether it was for private or work/business related purposes- in million people
- average number of Internet Banking users- in million people
- average number of transactions (in LEI) made by Internet Banking
- average value of transactions made by Internet Banking, in billions of LEI

In order to establish a model up to the entire surveyed population, we have applied the linear multiple regression method. It is an analytical method of studying the link between two or more variables with the means of a mathematical function which expresses the form of the relationship between the variables.

The regression function has the general form:

$$Y = f(x_1, x_2, \dots, x_n) + \varepsilon$$

where: Y-is the dependent variable, the effect phenomenon

x_1, x_2, \dots, x_n - is the independent variable, the influence factors

n - number of independent variables

ε – a constant factor that synthesizes the influence of the unrecorded factors.

4. Main findings

I proposed two models to highlight the existence of a relationship between the variables.

Within the first regression model, the dependent variable is provided by Internet Banking users, the Internet users variable represents the independent variable. To process the data we used Excel that provides a set of tools for data analysis.

Table 2 Regression results for the first model

MODEL SUMMARY	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>Standard error</i>	
Model	0.860	0.739	0.653	0.579	
ANOVA MODEL^a	<i>Sum of squares</i>		<i>Mean square</i>	<i>F</i>	<i>Sig. F</i>
Regression	2.866		2.866	8.528	0.061
Residual	1.008		0.336		
Total	3.874				
COEFFICIENTS^b	Unstandardized coefficients		t-Stat	P-value	
	<i>B</i>	<i>Std. error</i>			
(Constant)	-3.064	1.865	-1.643	0.198	
Internet users (IU)	0.564	0.193	2.920	0.061	

Notes: ^aDependent variable: Internet Banking users (IBU). ^bPredictors: (constant variable), Internet users.

Source: made by the author

The value of R^2 statistic is 0.739 (Table 2) and it shows the goodness of fit, 73.9% of total variance of the dependent variable. Internet banking users (IBU) is explained by independent variables, respectively Internet users (IU). The equation of the linear regression model has the following form:

$$IBU = -3.064 + 0.563 \cdot IU + \varepsilon \quad (1)$$

The increase of the Internet users by one unit value (one million people) leads to an increase of Internet Banking users with 563.000 mil people.

Figure 1 for model (1) shows a linear dependence trend (straight shape) between the two variables which justifies the choice.

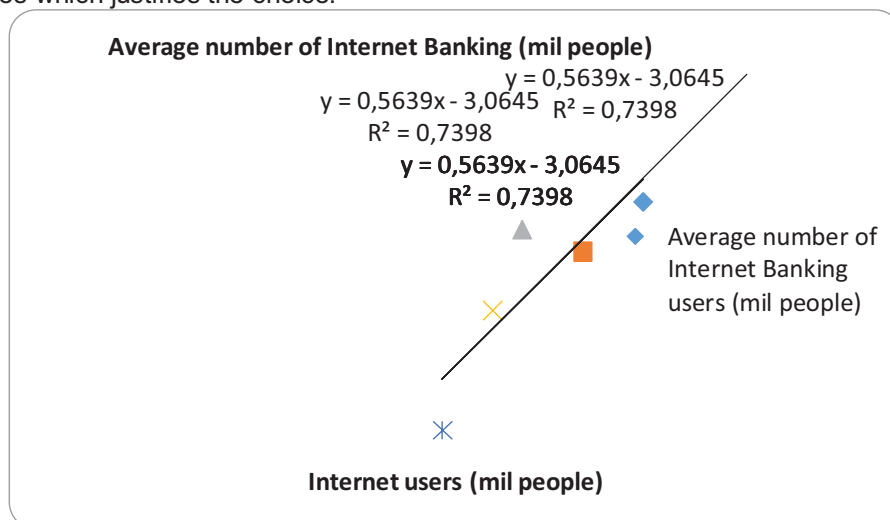


Figure 1: The relationship between the Internet users and the average number of Internet banking users

Source: made by the author

Within the second regression model, the dependent variable is provided by the average value of transactions (in billions of LEI) made by Internet Banking, the average number of Internet Banking users (ANIBU) and average number of transactions (in LEI) made by Internet Banking (ANTIB) representing the independent variables.

Table 3 Regression results for the second model

MODEL SUMMARY	<i>R</i>	<i>R</i> ²	<i>Adjusted R</i> ²	<i>Standard error</i>	
Model	0.988	0.976	0.953	28.087	
ANOVA MODEL^a	<i>Sum of squares</i>		<i>Mean square</i>	<i>F</i>	<i>Sig. F</i>
Regression	65466.229		32733.114	41.491	0.023
Residual	1577.818		788.909		
Total	67044.047				
COEFFICIENTS^b	Unstandardized coefficients		t-Stat	P-value	
	<i>B</i>	<i>Std. error</i>			
(Constant)	-63.110	35.799	-1.762	0.219	
ANIBU	75.414	50.433	1.495	0.273	
ANTIB	12.345	11.140	1.108	0.383	

Notes: ^aDependent variable: average value of transactions (in billions of LEI) made by Internet Banking. ^bPredictors: (constant), average number of Internet Banking users, average number of transactions (in LEI) made by Internet Banking.

Source: made by the author

The value of R^2 statistic is 0.976 (Table 3) and it shows the goodness of fit, 97.6% of total variance of the dependent variable. The average value of transactions (in billions of LEI) made by Internet Banking (AVTIB) is explained by independent variables, respectively average number of Internet Banking users (ANIBU), average number of transactions (in LEI) made by Internet Banking (ANTIB). The equation of the multi-linear regression model has the following form:

$$AVTIB = -63.11 + 75.414 \cdot ANIBU + 12.345 \cdot ANTIB + \varepsilon \quad (2)$$

This model shows that an increase with one unit value (one million people) in the number of Internet Banking users leads to an increase on average with 75.414 billions of LEI in the value of transactions made by Internet Banking. At an increase with one unit value (one million) of the number of transactions (in LEI) made by Internet Banking, the value of transactions made by Internet Banking increases on average with 12.345 billions of LEI.

5. Conclusions

Nowadays, the Internet has penetrated every aspect of life. Internet banking is gaining ground and has affected people's lives in many ways.

Internet banking has become an important phenomenon in the banking industry and it will continue as more progress is made in information technology. Another aspect is the continuous development of the user interface. With the growing amount of information and transactions, the development of Internet technologies and increasing experience of users, the simplicity and logic of the Internet banking environment needs continuous updating and overlooking to ensure that the offered solution is as client-friendly as possible.

The Romanian banking industry needs to change in order to keep up with the globalization movement. There are still a few banks that need to move from traditional distribution channel banking to electronic distribution channel banking.

The results of the model (1) have pointed out the fact that the rise of the number of Internet users leads to an increase of the number of Internet banking users. The results of the model (2) showed how the indicators influenced Internet Banking users and the number of transactions made by Internet Banking influenced the value of transactions made by Internet Banking.

The usage of Internet banking has a future in a country with an emerging economy such as Romania.

This study may contribute to the development of strategies for Romanian managers on how to maximize the rate of Internet banking usage.

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